Silicon Power Supply Test Check List

Power Unit _____

- ❑ Install the Daughter board into the connector on the Monitor board. See Pictures 1, 2, and 3.
- ❑ Install eight personality modules with the resistors facing away from each other in their respective sockets on the Monitor board. See tables for correct resistor values. See Picture 1.
- ❑ Plug in the correct fuses on the Monitor board. See tables for proper fuse values.
- ❑ Plug in molex connectors on the Daughter board for shunt inputs circuits Vcc #1 and Vcc #2.
- ❑ Connect the remote sense/remote voltage adjust connector to the Daughter board connector J7.
- ❑ Connect the sense cable connector from the fuse panel to the Daughter board connector J8.
- ❑ Connect the Readout Board cable connector to the Monitor board Make sure that all the buttons are out. Note that the On/Off and Remote/Local buttons are mechanical latching types.
- ❑ Connect the voltage adjust card cable connector to the Daughter board connector J6.
- ❑ Connect the computer interface cables. (RM 37-pin 'D' connectors.) ANALOG P5-top left P6-bottom left; DIGITAL P2-top right P3-bottom right.
- ❑ Connect the 10-channel Power Pole connector from the test fuse panel to the power supply unit.
- ❑ **Note:** Damage to the power supplies can occur if remote sense wires are improperly wired.
    1) Measure the resistance from each of the ten supplies "+" sense pin to the "+" terminal of the respective power supply. The reading should be approximately zero ohms.
    2) Measure the resistance from each of the ten supplies "-" sense pin to the "-" terminal of the respective power supply. The reading should be approximately zero ohms.
    3) Measure the resistance from each of the ten supplies "+" terminal of the power supply to the respective "+" sense fuse (load side) marked with an "X" at the test fuse panel. The reading should be approximately zero ohms. Remove the sense fuse. Measure the resistance from each of the ten supplies "+" terminal of the power supply to the respective "+" sense fuse (load side) marked with an "X" at the fuse panel. The reading should be approximately nine ohms.
    4) Measure the resistance from each of the ten supplies "-" terminal of the power supply to the respective "-" Buss at the fuse panel. The reading should be approximately zero ohms.

- ❑ Connect a twin ax connector cable to Cyro cooling enable connector located under the plastic safety cover for AC supply. Hook the other end to a shorted connector that can later be removed.
- ❑ Perform Helium Leak Check. See attached procedure.

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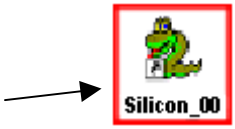
- ❑ Connect water hoses. Direction is not important, but flow is. Piping will be cool when water is flowing.
- ❑ Start the monitoring program on the PC located at C:\monitoring\Silicon_00



- ❑ Connect the AC power cord to begin testing. (Supply should not turn on without the jumper in the following step inserted! Press the RESET button to clear all but the External Interlock LED).
- ❑ Place External Interlock jumper on U49. This is needed for the AC power relay. (See Board Detail Top Right)
- ❑ Press the RESET button and ON button to turn the supply ON, presently without a load. Supply should not fault.
- ❑ Test that the supply turns ON and OFF in Local position. Make a screen capture of the output voltages and printout the results. Do this by selecting the desired window then pressing Alt-Print Screen, open Word and paste the capture on a page for printing. Add the supply serial number, the date to the printout, indicate "no load". Use the document template 'Silicon Template' from the File/New document menu choice.
- ❑ Momentarily remove the jumper from U49 and verify the AC is removed from the supply. (Supply fan will stop after approximately 5-10 Sec. Also notice that the green LED on the solid state relay goes off.)
- ❑ Switch the supply to Remote and from the interface program confirm ON/OFF/RESET control.
- ❑ Put ON/OFF switch in the OFF position when changing the Personality Modules.
- ❑ Test that the overvoltage circuitry is working by placing special Personality modules (see attached tables) in each position one by one. The voltage on voltage trip pot is reduced until a trip occurs (note voltage). The voltage on voltage trip pot is now adjusted to the table value.
- ❑ Turn off supply and connect the load (5 ohms for PS 4 and Ps 7) and (1 ohm for the other supplies). Turn back On and verify the supply will operate without tripping. The voltage on Current trip pot is reduced until a trip occurs (note voltage). The voltage on current trip pot is now adjusted to the table value.
- ❑ Checkout the Hall sensor readback. Place the test magnet with the spacer on the front of the sensor. The reading should be approximately 25Gauss.
- ❑ Turn back ON and operate the supply under full load for a minimum of 30 minutes. Make another screen capture of at the end of this test. Again paste the capture in the Word document and print and save the document on the PC.
- ❑ After all tests are completed successfully remove the jumper from U49, water, computer cables, readout board and load connections. Then apply an Orange dot on the side of the supply (other stickers are already there) to indicate a successful test.

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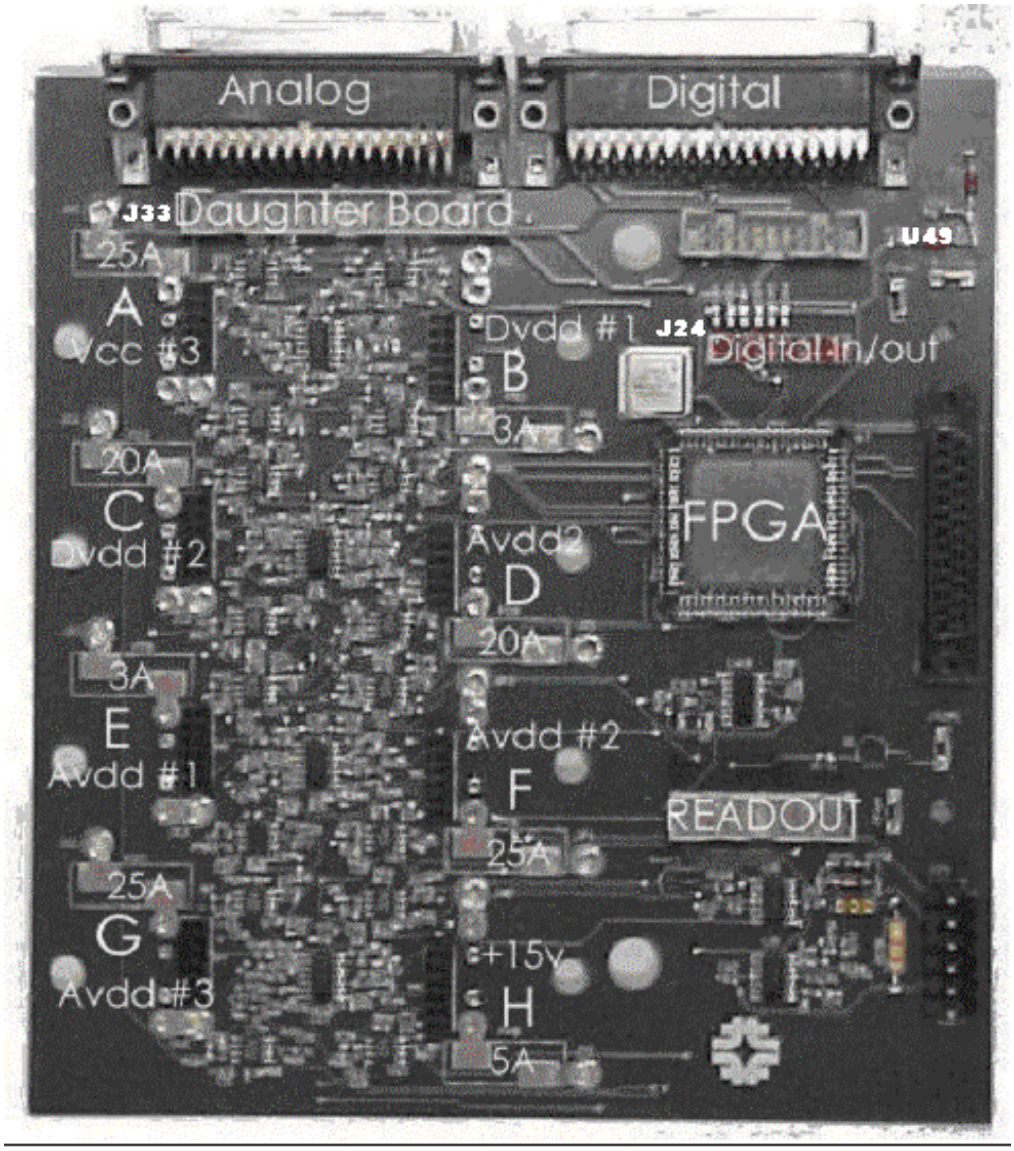
- ❑ If there is any problems found during testing, tag the unit with a note describing the failure for an expert to trouble shoot.

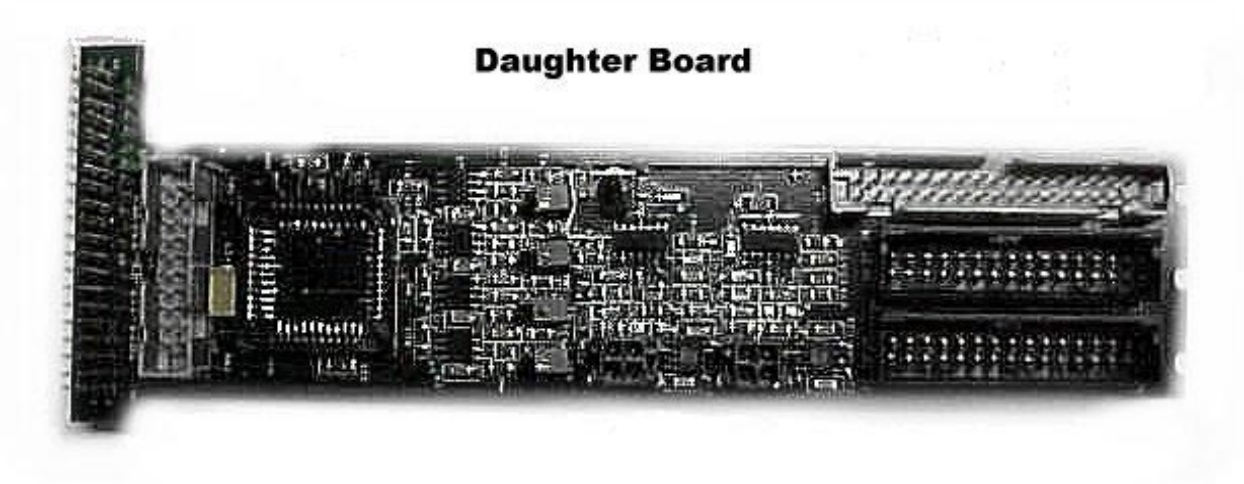
- ❑ Record Actual Fuse Panel Voltages, Voltage trips points and Current trip points.

P.S. Slot	Power Supply Type	Fuse Panel (No Load) Volts	Voltage Trip Volts	Current Trip Volts (Amps)	Fuse Panel (full Load) Volts	Current (full Load) Amps
1	VCC#1					
2	VCC#2					
3	VCC#3					
4	DVDD#1					
5	DVDD#2					
6	AVDD2					
7	AVDD#1					
8	AVDD#2					
9	AVDD#3					
10	15VDC					

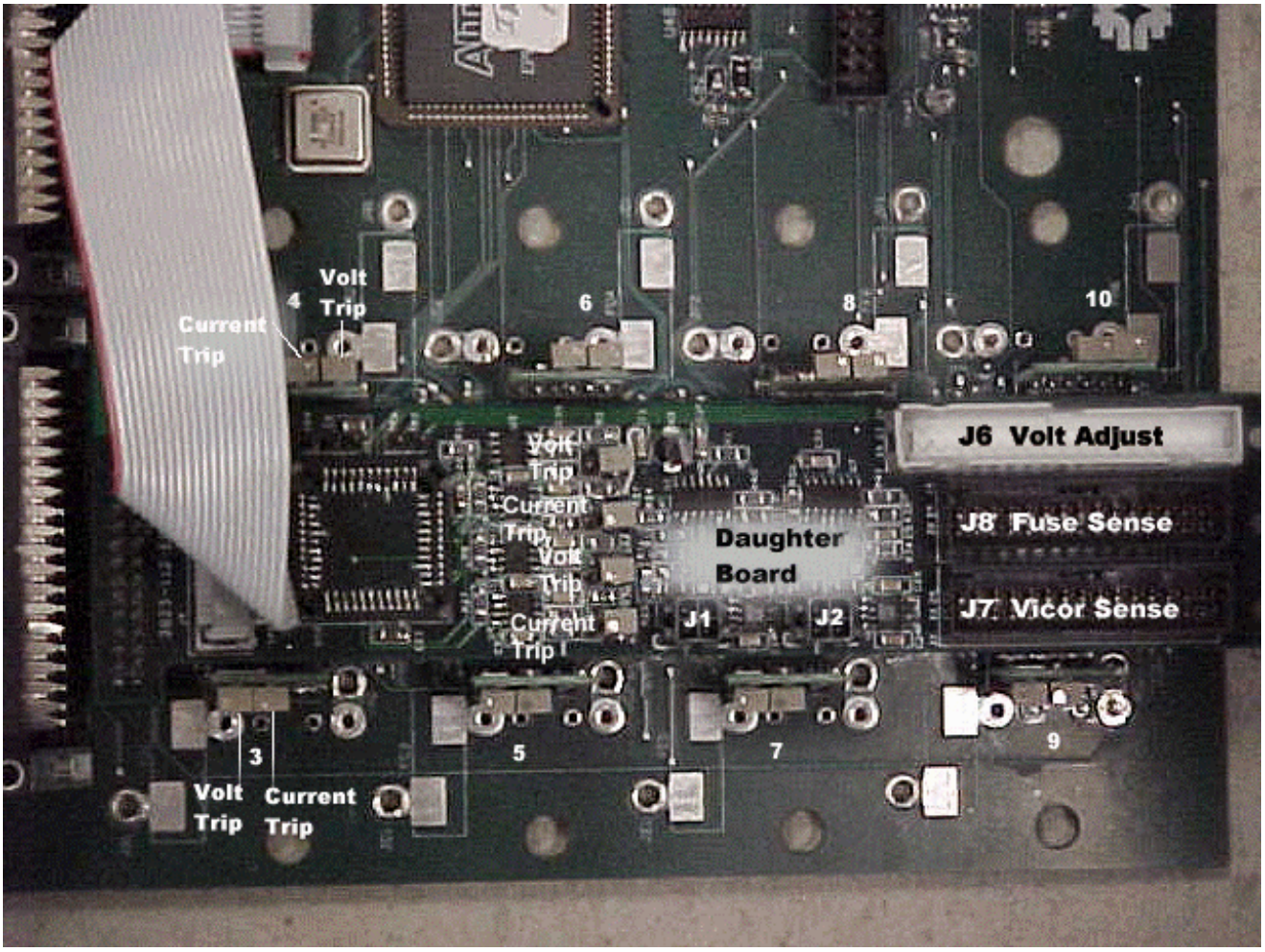
Notes:



Picture 1 Monitor board shown with daughter board removed

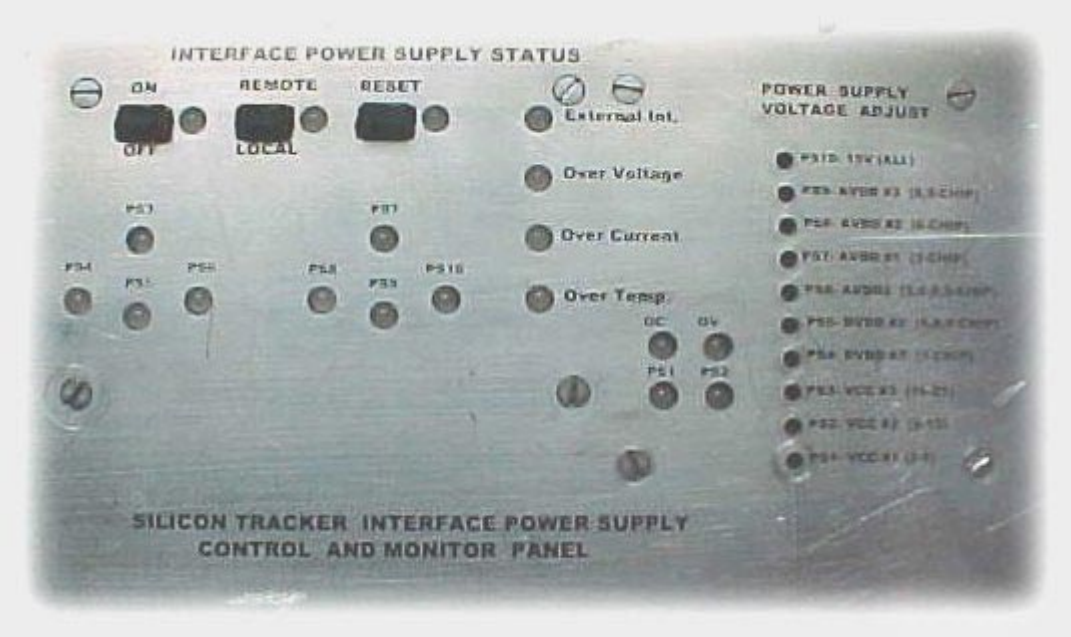


Picture 2 Daughter board shown without monitor board.



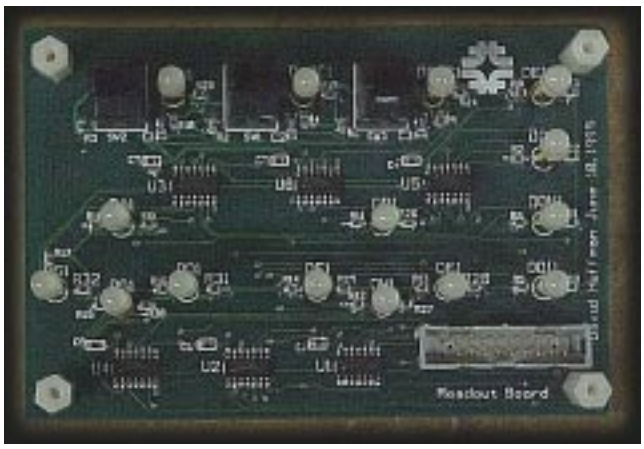
Picture 3 Daughter board shown plugged into connector on monitor board.

Silicon Power Supply Test Check List

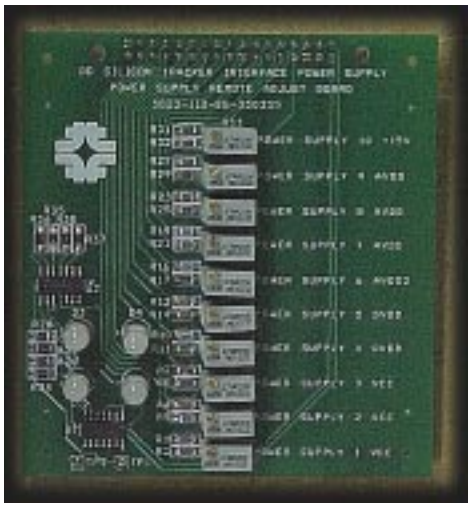


Picture 4 Control panel shown.

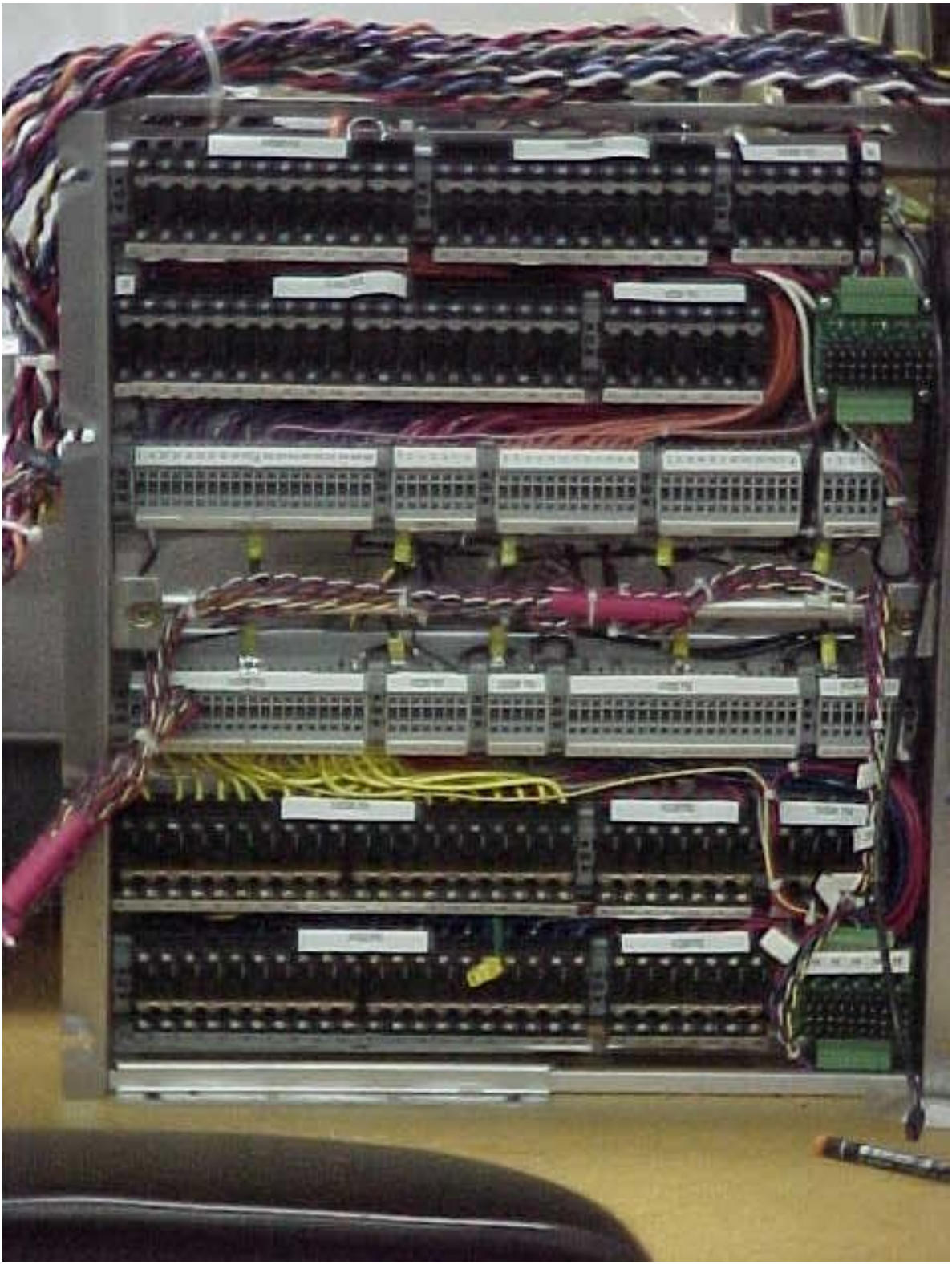
Readout Board



Voltage Adjust Board



Picture 5 Readout and voltage adjust board shown.



Picture 6 Fuse panel shown.

Silicon Power Supply Test Check List

Helium Leak Test

1) Hook up one water hose to a pressure gauge that can read 120 PSIG.
2) Hook up other water hose to a regulated (120 PSIG) Helium supply.
3) Pressurize to 120 PSIG.
4) Remove the water hose from the helium supply. Install plug in hose connection.
5) Record pressure gauge reading _____PSIG.
6) After 1 hour record pressure gauge reading _____PSIG.

   Note: Pressure drop should not exceed 10 Psig. If pressure drop exceeds 10 PSIG, Check all fittings and tighten as necessary. Repeat test.

7) Remove plug and depressurize hoses. Remove pressure gauge.

Table 1

			Voltage	Adjust	Board		
P.S. Slot	Power Supply Type	Control Board Fuse Amp.	Low end of Pot Volts	Voltage @ Fuse Panel Volts	High end of Pot Volts	Low and High range adjust R6 Values	R8 Values
1	VCC#1	30	4.75	5.25	6.43	30k(R1)	30k(R2)
2	VCC#2	30	4.75	5.25	6.42	30k(R4)	30k(R5)
3	VCC#3	30	4.75	5.25	6.30	30k(R7)	30k(R8)
4	DVDD#1	30	4.61	5.15	6.03	50k(R10)	10k(R11)
5	DVDD#2	30	4.83	5.35	6.33	40k(R13)	20k(R14)
6	AVDD2	30	3.45	4.10	4.39	50k(R16)	5k(R17)
7	AVDD#1	30	4.61	5.70	6.44	50k(R19)	5k(R21)
8	AVDD#2	30	5.09	5.90	6.70	40k(R23)	20k(R25)
9	AVDD#3	30	5.22	6.15	6.68	40k(R27)	30k(R29)
10	15VDC	30	14.00	15.10	15.55	100k(R31)	100k(R32)

Silicon Power Supply Test Check List

Table 2

P.S. Slot	Power Supply Type	Personality Circuits											
		R1(Vpot)	R2(Ipot)	R3	R4	R5	R6	R7	R8	R9	R10	C1	Notes
201	VCC#1	10k(R3)	10k(R37)	1k(R2)	100(R20)	Open(R14)	100(R36)	NA	NA	NA	NA	1uF(C2)	Daughter Board
2	VCC#2	10k(R5)	10k(R39)	1k(R4)	100(R21)	Open(R15)	100(R38)	NA	NA	NA	NA	1uF(C3)	Daughter Board
3	VCC#3	10k	10k	1k	100	Open	100	0	Open	Open	0	1uF	Control Board
4	DVDD#1	10k	10k	1k	100	Open	49.9k	0	Open	Open	0	1uF	Control Board
5	DVDD#2	10k	10k	1k	100	Open	100	0	Open	Open	0	1uF	Control Board
6	AVDD2	10k	10k	1k	100	Open	100	0	Open	Open	0	1uF	Control Board
7	AVDD#1	10k	10k	1k	100	Open	49.9k	0	Open	Open	0	1uF	Control Board
8	AVDD#2	10k	10k	1k	100	Open	100	0	Open	Open	0	1uF	Control Board
9	AVDD#3	10k	10k	1k	100	Open	100	0	Open	Open	0	1uF	Control Board
10	15VDC	10k	10k	1k	1k	1k	1k	0	Open	Open	0	1uF	Control Board

Table 3

P.S. Slot	Power Supply Type	Fuse Panel Volts	Voltage Trip Volts	Current Trip Volts (Amps)
1	VCC#1	5.25	**7.00**	9.90 (29.70)
2	VCC#2	5.25	**7.00**	**9.90** (24.75)
3	VCC#3	5.25	**7.00**	**9.90** (24.75)
4	DVDD#1	5.15	**6.80**	**1.60** (4.00)
5	DVDD#2	5.35	**6.50**	**8.00** (20.00)
6	AVDD2	4.10	**4.90**	**8.00** (20.00)
7	AVDD#1	5.70	**6.80**	**1.60** (4.00)
8	AVDD#2	5.90	**7.00**	**9.90** (24.75)
9	AVDD#3	6.15	**7.20**	**9.90** (24.75)
10	15VDC	15.10	**8.00**	**2.40** (6.00)